

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by converting at least one methionine or tryptophane residue existing in the receptor binding site of mature human MP52 (SEQ ID NO 1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.
2. (Original) The mature protein according to claim 1, wherein the chemical modification for said methionine residue is an oxidization reaction.
3. (Original) The mature protein according to claim 2 in which four methionine residues are oxidized and having the amino acid sequence of SEQ ID NO 5.
4. (Original) The mature protein according to claim 1, wherein the chemical modification for said methionine residue is an alkylation reaction.
5. (Original) The mature protein according to claim 4 wherein the alkylation reaction is S-carboxymethylation in which at least one methionine residue is S-carboxymethylated and having the amino acid sequence of SEQ ID NO 6.
6. (Original) The mature protein according to claim 1, wherein the chemical modification for said tryptophane residue is an allylsulphenylation reaction.
7. (Original) The mature protein according to claim 6 in which two tryptophane residues are allylsulphenylated and having the amino acid sequence of SEQ ID NO 7.

8. (Previously Presented) The mature protein according to claim 1, wherein said mature human MP52 is a dimer protein.

9. (Original) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by converting at least one residue of tryptophane residues existing in the amino acid sequences of mature human BMP-2 (SEQ ID NO 2), mature human BMP-4 (SEQ ID NO 3) or mature human BMP-7 (SEQ ID NO 4) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.

10. (Original) A mature protein having an antagonistic activity against bone morphogenetic proteins, obtained by replacing at least one amino acid residue of three hydrophobic amino acid residues, among said hydrophobic amino acid residues relating to a receptor binding site in the amino acid sequences of mature human BMP-2 (SEQ ID NO 2), mature human BMP-4 (SEQ ID NO 3), or mature human BMP-7 (SEQ ID NO 4), which are located in positions corresponding to those of methionine residues located in 30th, 71st, and 74th positions of the amino acid sequence of mature human MP52 (SEQ ID NO 1) with a hydrophilic amino acid residue or a polar amino acid residue.

11. (Previously Presented) The mature protein according to claim 9, wherein said mature human BMP-2, mature human BMP-4, or mature human BMP-7 is a dimer protein.

12. (Currently Amended) An agent for therapy and/or prevention of symptoms of ectopic ossification which is related to BMPs, containing a mature protein according to claim 1 as an effective ingredient showing an antagonistic activity against a bone morphogenetic protein.

13. (Currently Amended) An agent for therapy and/or prevention of symptoms of metabolic diseases with calcification wherein said disease is related to the expression of BMPs, containing a mature protein according to claim 1 as an effective ingredient showing an antagonistic activity against a bone morphogenetic protein.
14. (Currently Amended) A method of treating ectopic ossification which is related to BMPs, in warm-blooded animals comprising administering to warm-blooded animals in need thereof an amount of a mature protein according to claim 1 sufficient to treat ectopic ossification.
15. (Currently Amended) A method of treating metabolic diseases with calcification wherein said diseases are related to the expression of BMPs, in warm-blooded animals comprising administering to warm-blooded animals in need thereof an amount of a mature protein of claim 1 sufficient to treat said metabolic diseases.
16. (Previously presented) A mature modified protein obtained by converting at least one methionine or tryptophan residue existing in the receptor binding site of mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.
17. (Previously presented) A mature protein having a BMP antagonist-like activity obtained by converting at least one methionine or tryptophan residue existing in the receptor binding site of mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue.

18. (Previously presented) A mature modified protein obtained by converting at least one methionine residue at position 30, 71 or 74 or at least one tryptophan residue existing in mature human MP52 (SEQ ID NO:1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue, wherein said mature modified protein has antagonistic activity against at least one BMP protein selected from the group consisting of MP52, BMP-2, BMP-4 and BMP-7.

19. (New) A mature, modified protein having an antagonistic activity against bone morphogenetic proteins, obtained by converting at least one methionine or tryptophane residue existing in the receptor binding site of mature human MP52 (SEQ ID NO 1) to a hydrophilic residue by chemical modification, or replacing said residues with a hydrophilic amino acid residue or a polar amino acid residue, wherein said mature modified protein has antagonistic activity against at least one BMP protein selected from the group consisting of MP52, BMP-2, BMP-4 and BMP-7.